Appl. No. 09/522,711
Reply to Office Action of December 18, 2003

Attorney Docket: P65138US0

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) An apparatus for detecting a block noise generated on an input video signal that has been ~~code~~ coded and decode per pixel block, the apparatus comprising:

    a differentiator to differentiate the input video signal per pixel ~~block~~ to obtain a differentiated signal;

    a detector to detect impulses of the differentiated signal to obtain a detection signal carrying the impulses;

    an integrator to integrate the detection signal for every N-th pixel of consecutive M pixels in a horizontal direction and to obtain integrated detection signals corresponding to a first to an M-th pixels, respectively, M being the number of pixels per pixel block in the horizontal direction, and N being an integer among 1 to M; and

    a determinator to compare the integrated detection ~~signal~~ signals and a reference signal to determine whether the block noise is generated on the input video signal.

2. (Cancelled)

3. (Currently Amended) The apparatus according to claim ~~2~~ 1 wherein the determinator includes:

    a counter to count the number of integrated impulses of the integrated detection signal per predetermined unit of image carried by the input video signal;

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a plurality of delay sections each delaying the counted number by a period decided based on the predetermined unit of image, thus outputting count signals for succeeding images in the predetermined unit of image; and

a median section to select a middle count signal among the count signals, which is the middle in level, the middle count signal being compared with the reference signal.

4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Cancelled)

8. (Currently amended) A method of detecting a block noise generated on an input video signal that has been ~~code~~ coded and decoded per pixel block, comprising the steps of:

differentiating the input video signal per pixel ~~block~~ to obtain a differentiated signal;

detecting impulses of the differentiated signal to obtain a detection signal carrying the impulses;

integrating the detection signal for every N-th pixel of consecutive M pixels in a horizontal direction and to obtain integrated detection signals corresponding to a first to an M-th pixels, respectively, M being the number of pixels per pixel block in the horizontal direction, and N being an integer among 1 to M; and

comparing the integrated detection ~~signal~~ signals and a reference signal to determine whether the block noise is generated on the input video signal.

9. (Cancelled)

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10. (Currently Amended) The method according to claim 9 8 wherein the comparing

step includes the steps of:

counting the number of integrated impulses of the integrated

detection signal per predetermined unit of image carried by the input video

signal;

delaying the counted number by a period decided based on the

predetermined unit of image, thus outputting count signals in the

predetermined unit of image; and

selecting a middle count signal among the count signals, which is

the middle in level, the middle count signal being compared with the

reference signal.

11. (Cancelled)

12. (Cancelled)

13. (Currently amended) A computer-implemented method of detecting a block noise

generated on an input video signal that has been code coded and decoded per

pixel block, comprising the steps of:

differentiating the input video signal per pixel block to obtain a

differentiated signal;

detecting impulses of the differentiated signal to obtain a detection

signal carrying the impulses;

integrating the detection signal for every N-th pixel of consecutive

M pixels in a horizontal direction and to obtain integrated detection

signals corresponding to a first to an M-th pixels, respectively, M being

the number of pixels per pixel block in the horizontal direction, and N

being an integer among 1 to M; and

comparing the integrated detection signal signals and a reference

signal to determine whether the block noise is generated on the input video

signal.

14. (Cancelled)

15. (Currently amended) A processor readable medium storing program code for causing a computer to detect a block noise generated on an input video signal that has been ~~code~~ coded and decoded per pixel block, comprising:

first program code means for differentiating the input video signal per pixel ~~block~~ to obtain a differentiated signal;

second program code means for detecting impulses of the differentiated signal to obtain a detection signal carrying the impulses;
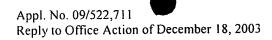
third program code means for integrating the detection signal for every N-th pixel of consecutive M pixels in a horizontal direction and to obtain integrated detection signals corresponding to a first to an M-th pixels, respectively, M being the number of pixels per pixel block in the horizontal direction, and N being an integer among 1 to M; and

fourth program code means for comparing the integrated detection ~~signal~~ signals and a reference signal to determine whether the block noise is generated on the input video signal.

16. (Cancelled)

17. (New) The apparatus according to claim 1, wherein, for each frame of the video signal, the integrator integrates the detection signal over the entire frame.

18. (New) The method according to claim 8, wherein the integrating step includes the step of, for each frame of the video signal, integrating the detection signal over the entire frame.

19. (New) The apparatus according to claim 1, wherein the integrator integrates the detection signal for all pixels of each frame of the video signal.

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20. (New) The method according to claim 8, wherein the integrating step includes the step of integrating the detection signal for all pixels of each frame of the video signal.